



UTAH DEPARTMENT OF
HEALTH

COVID Technologies, Apps, and Automated Contact Tracing

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EpiTrax

- Statewide disease surveillance system used by UDOH, all 13 LHDs, 5 tribal public health agencies, and HAFB PHO
- Used for all communicable disease surveillance and some environmental conditions
- All COVID Surveillance and Contact Tracing

Not on our watch!



 The New York Times

Bottleneck for U.S. Coronavirus Response: The Fax Machine

Before public health officials can manage the pandemic, they must deal with a broken data system that sends incomplete results in formats they ...

Jul 13, 2020

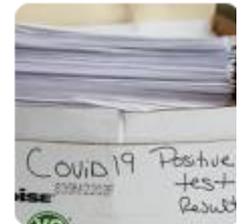


 Cleveland.com

What Ohio could have learned about the coronavirus – if the state had the data

COLUMBUS, Ohio – Public health is a topic that has inspired little ... At two decades old, Ohio's infectious disease reporting database is antiquated. ... some laboratories were emailing and faxing COVID-19 test results, which ...

3 weeks ago

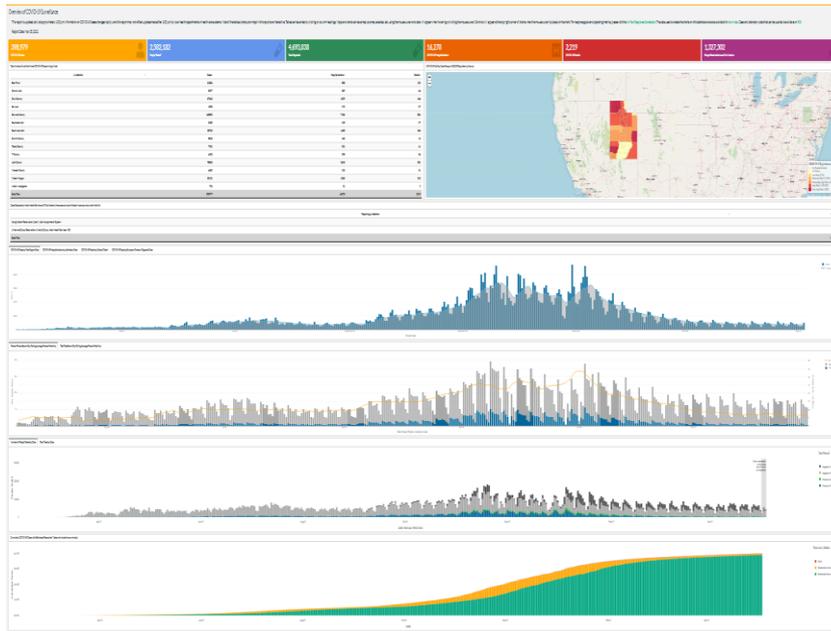
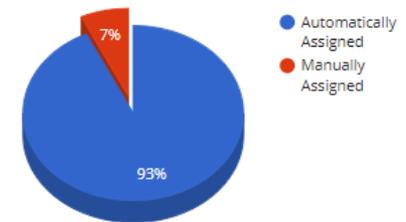


Existing Electronic Surveillance



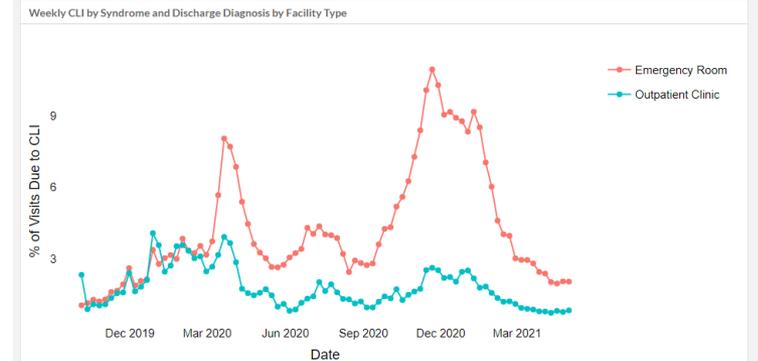
- Electronic Laboratory Reporting (ELR)
- Electronic Case Reporting (eCR)
- Syndromic Surveillance (SyS)

Percent Automated Messages vs. Manual



Syndromic Surveillance Trends

The chart below shows how many people are going to emergency rooms and outpatient clinics with COVID-19 symptoms. These cases are calculated by taking the percentage of people with these symptoms or a diagnosis of COVID-19 (CDC case definition) and comparing them to all other emergency room or outpatient clinic visits. Syndromic surveillance can show increases more quickly than lab testing so an increase in this measure might indicate growing COVID-19 illness. The data in this system are also affected by recent changes in health care seeking behavior, including increasing use of telemedicine and social distancing. These changes affect the numbers of people and their reasons for seeking care, so trends need to be interpreted with other surveillance data.



Utah eCR Implementations

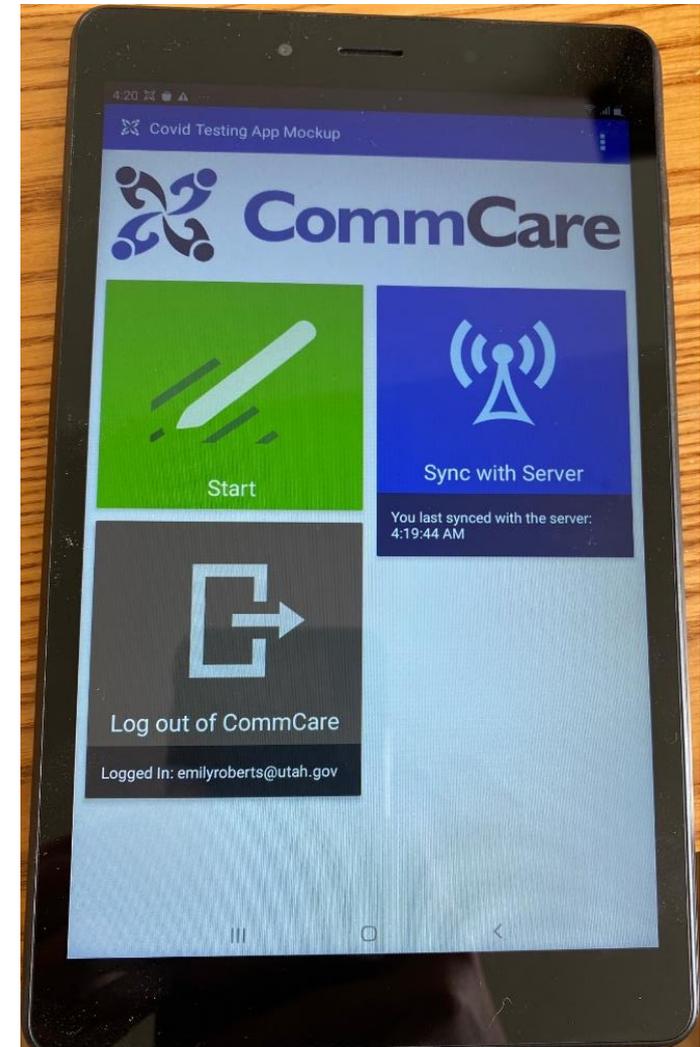


- Family planning organization – October 2016
 - 9 clinics
 - Chlamydia, gonorrhea, syphilis, HIV
- Largest healthcare system – December 2019
 - 22 hospitals, ~160 clinics
 - Pertussis, chlamydia, gonorrhea, salmonella, zika virus, COVID
- Academic healthcare system – June 2020
 - 5 hospitals, 12 community clinics, several specialty centers
 - COVID

CSTE COVID-19 Reporting Application Pilot



- CSTE/World Economic Forum partnership
- Tablets customized with CommCare software
- Results automatically sent and housed in the cloud
- Full pilot implemented in less than 36 hours, actual training and setup per site averaging 2-3 hours total
- Successes:
 - Portability, data quality, workflow
- Challenges:
 - Software updates, API connection issues, pilot discontinued
- Pilot successfully demonstrated the benefits of a tool like this for low-resource sites who are not able to devote additional resources for electronic reporting



Reporting Portal

A screenshot of the Utah Department of Health's COVID-19 Reporting Portal. The page title is "Reporting Portal" and the subtitle is "COVID-19 (SARS-CoV-2) Laboratory Result Reporting Portal". The page is titled "Step 1 of 6 Demographics". The main content area contains a paragraph explaining that laboratories and clinicians must report all test results within 24 hours of test finalization. Below this is a "Demographics" section with a "Name" dropdown menu and three input fields for "First", "Middle", and "Last" names. The left sidebar contains navigation links for "Add content", "COVID-19 (SARS-CoV-2) Laboratory Result Reporting Portal", "Upload COVID-19 (SARS-CoV-2)", "Import", "Documentation and Help", "Site Admin", "Users", "Biomat Submissions", "Covid-19 Submissions", "Edit Covid-19 Facilities", "Imported Covid-19", and "Imported Covid-19 Contact".

- UDOH developed an online reporting portal for organizations that cannot send results through HL7 messaging
- Within the portal, there are two options for reporting:
 - Users can enter results one-by-one using direct data entry form
 - Multiple results can be uploaded at one time using a .csv formatted spreadsheet
- For .csv upload, submitters must match a very strict format; including headers of requested data elements and certain data element values

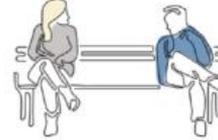
Mobile Technologies



- Healthy Together
- Apple | Google Exposure Notification Express



Alice and Bob don't know each other, but have a lengthy conversation sitting a few feet apart



Bob is positively diagnosed for COVID-19 and enters the test result in an app from his public health authority



Their phones exchange with random Bluetooth identifiers (which change frequently)



A few days later...

With Bob's consent, his phone uploads the last 14 days of keys for his Bluetooth beacons to the server



Apple | Google

Alice continues her day unaware she had been near a potentially contagious person



Alice sees a notification on her phone



Alice's phone periodically downloads the Bluetooth beacon keys of everyone who has tested positive for COVID-19 in her region. A match is found with Bob's random Bluetooth identifiers.



Sometime later...

Alice's phone receives a notification with information about what to do next.



Apple | Google

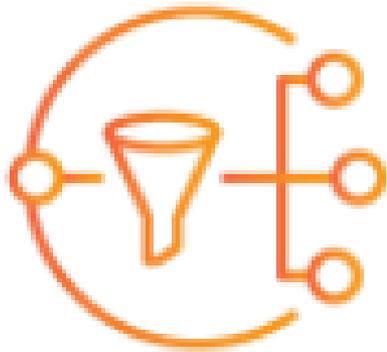
Online Access to Testing



**test
utah**



SMS Notifications and Referrals



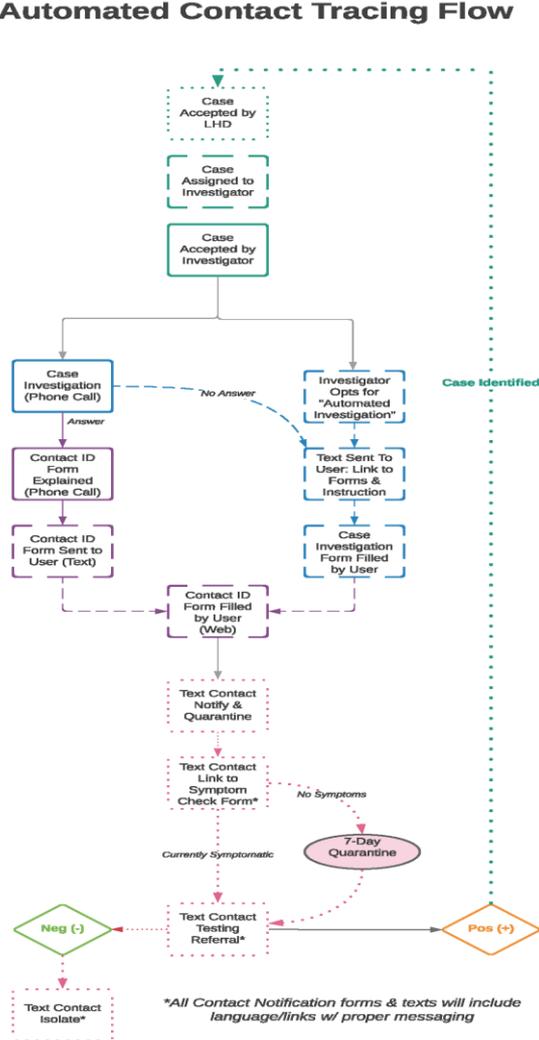
Amazon SNS



Automated Contact Tracing System



Automated Contact Tracing Flow



- Case investigation
- Contact Tracing
- Contact Notification
- Testing Referral

Automated Contact Tracing System



EpiTrax



NEXTGEN
CONNECT



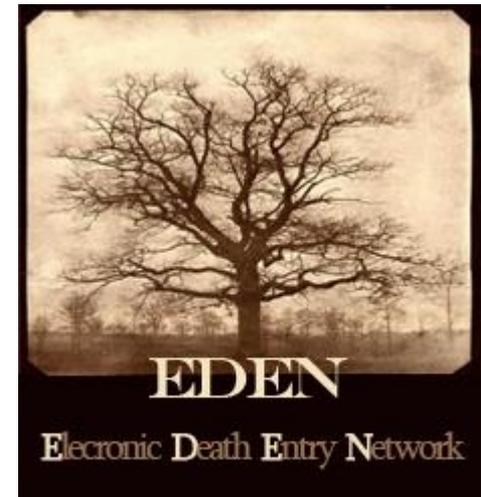
Amazon SNS

Internal Integrations



EpiTrax

DOHMPI API
FHIR





Thank
You!